GefenPRO

1080P PROGRESSIVE

dvi digital visual interface

DVI to HDSDI Pro Scaler

GEF-DVI-2-HDSDIPRO

User Manual

www.gefenpro.com

ASKING FOR ASSISTANCE

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INTRODUCTION

Congratulations on your purchase of the DVI to HDSDI Pro Scaler. Your complete satisfaction is very important to us.

GefenPRO

In the realm of video distribution, certain features are invaluable in a commercial or broadcast environment. Accommodations such as a build-in power supply and flat black rack-mount enclosures set GefenPRO apart from our traditional products. Complex distribution units allow for professional DVI, 3G-SDI, and HDMI signals to be routed and converted easily and seamlessly, while being backed up by a renowned and dependable technical support team. Gefen invites you to explore the GefenPRO product line and hopes that you find the solution that fits your needs.

The GefenPRO DVI to HDSDI Pro Scaler

The GefenPRO DVI to HDSDI Pro Scaler places two DVI to HDSDI Scaler Plus units in one rack mount enclosure. This product provides two separate DVI inputs to be converted and scaled to single link or dual link HDSDI. Resolutions up to 1080p and 2K with genlock are supported on the HDSDI output. This product uses VXP scaler technology which provides high-performance scaling plus additional features: Adaptive video interlacing with edge interpolation, noise reduction, alpha blending, and image enhancement. Two separate BNC connectors offer external genlock capabilities. The GefenPRO DVI to HDSDI Pro Scaler provides superior HDSDI scaling quality in one rack mount space.

How It Works

Connect two (2) DVI sources to the GefenPRO DVI to HDSDI Pro Scaler using the supplied DVI cables. Connect up to two (2) HDSDI devices to the outputs. Apply power to the source and HDSDI devices first then apply power to the product. The DVI source will be converted to HDSDI and then scaled on the output. Use the IR remote control unit to navigate the built-in menu system to control the scaling features on the HDSDI output.

READ THESE NOTES BEFORE INSTALLING OR OPERATING THE DVI TO HDSDI PRO SCALER

- On power-up, the DVI to HDSDI Pro Scaler will automatically detect the format of the input signal.

- The DVI to HDSDI Pro Scaler contains a master and a slave DVI to HDSDI Scaler unit. Both Scaler units are controlled using the IR Remote Control Unit. To view the built-in menu system for the master unit, press the Menu button once on the IR Remote Control Unit. To bring up the built-in menu system for the slave unit, press the Menu button twice. Pressing the Menu button once more will exit the built-in menu system.

FEATURES

Features:

- Input and Output Resolutions up to 2048x1080
- 10-bit resolution for greater precision and dynamic range
- Proprietary 10-bit motion adaptive video de-interlacing with edge interpolation for HD / SD formats
- Frame rate conversion to / from any refresh rate
- Fully integrated sprite based multi-plane OSD controller
- Advanced noise reduction and detail enhancement
- Test Pattern mode with color bars and cross hatch patterns
- Color correction
- Noise Reduction
- Detail Enhancement
- Brightness Adjustment
- Gamma Selection
- Aspect Ratio Selection
- Custom Timing output mode
- RS-232 Control
- IR Control
- French / English Menu Set
- Field-upgradeable firmware
- Genlock capable

Package Includes:

(1) GefenPRO DVI to HDSDI Pro Scaler
(2) 6-foot DVI Cables (M-M)
(1) 6-foot Serial DB9 Cable (M-F)
(1) IR Remote Control Unit
(1) 5V DC Locking Power Supply
(1) Set of Rack Ears
(1) User Manual

Front Panel

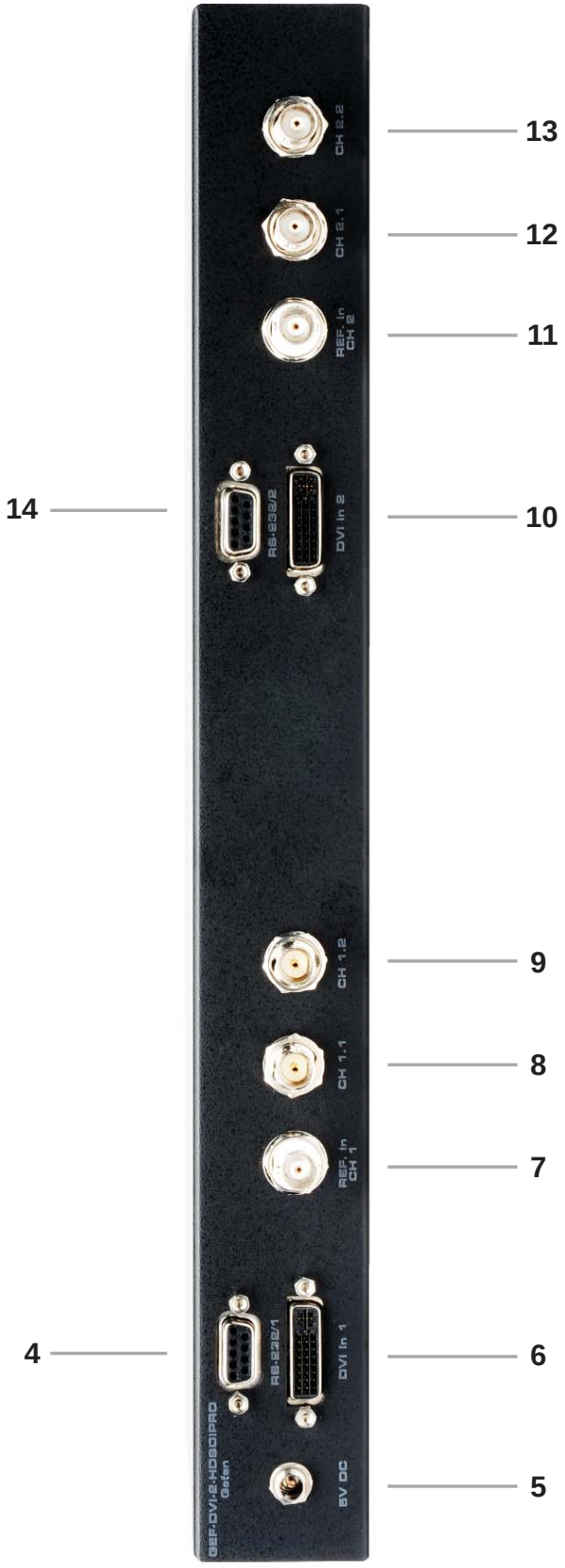
Front Panel

1 IR Window 1 (Primary Board)
Receives signals from the IR Remote Control unit.

2 IR Window 2 (Secondary Board)
Receives signals from the IR Remote Control unit.

3 Power Indicator
This LED indicator will glow red when the power is turned on.

Back Panel


13
12
11
14
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9
8
7
4
6
5
CH 2.2
CH 2.1
REF. in CH 2
RS-232/2
DVI in 2
CH 1.2
CH 1.1
REF. in CH 1
RS-232/1
DVI in 1
5V DC
DEF-DVI-2.HDSDIPRO
Gefen

Back Panel

4 RS-232 Serial Port
Connects to the RS-232 control device. The DVI to HDSDI Pro Scaler may be controlled using this port. See page 26 for more information.

5 5V DC Locking Power Connector
Connects the included 5V DC Locking Power Supply to this receptacle.

6 DVI Input Port (Primary Board)
Connect the DVI source device to this port.

7 Reference In Connector 1
Connect an external clock to this connector.

8 HD-SDI Single Link Output 1
Connect a single cable to this port for single link resolutions.

9 HD-SDI Dual Link Output 1
Connect a secondary cable to this port for dual link resolutions.

10 DVI Input Port (Primary Board)
Connect the DVI source device to this port.

11 Reference In Connector 2
Connect an external clock to this connector.

12 HD-SDI Single Link Output 2
Connect a single cable to this port for single link resolutions.

13 HD-SDI Dual Link Output 2
Connect a secondary cable to this port for dual link resolutions.

14 RS-232 Serial Port
Connects the secondary board to the RS-232 control device. The DVI to HDSDI Pro Scaler may be controlled using this port. See page 26 for more information.

How to Connect the GefenPRO DVI to HDSDI Pro Scaler

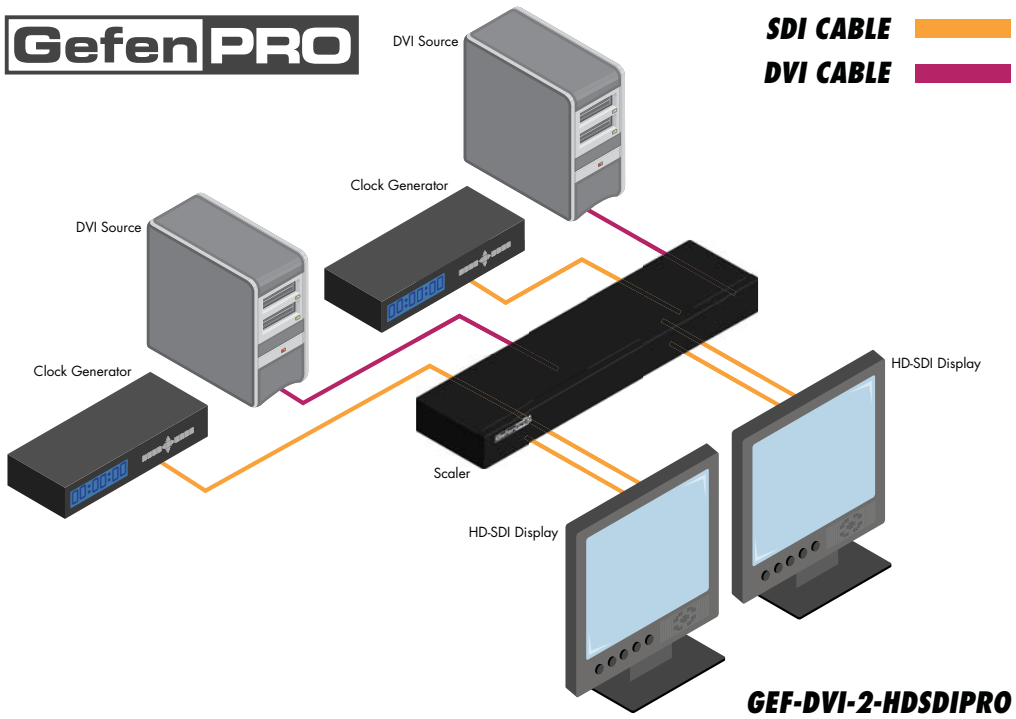
1. Connect two (2) DVI sources to the GefenPRO DVI to HDSDI Pro Scaler using the supplied DVI cables..

2. Connect up to two (2) HDSDI devices to the outputs.

3. Apply power to the source and HDSDI devices first then apply power to the product..

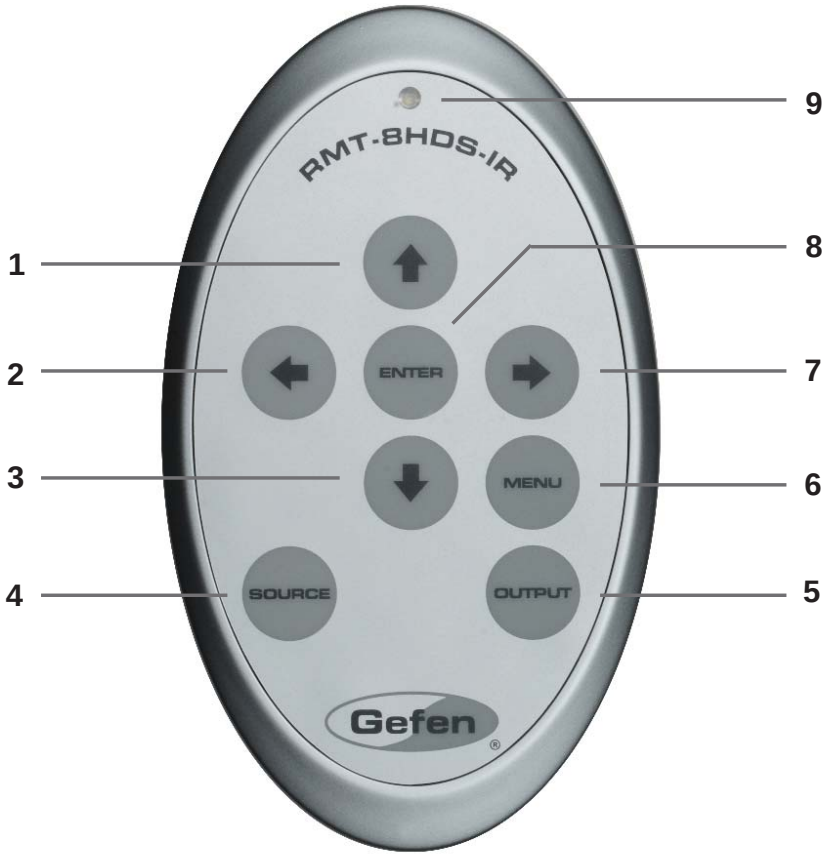
The DVI source will be converted to HDSDI and then scaled on the output. Use the IR remote control unit to navigate the built-in menu system to control the scaling features on the HDSDI output.

Wiring Diagram for the DVI to HDSDI Pro Scaler



IR REMOTE LAYOUT

RMT-8HDS-IR Remote Control



1 ***Up Cursor Button***
Moves the selection cursor Up, when using the built-in menu system.

2 ***Left Cursor Button***
Moves the selection cursor to the Left, when using the On-Screen Display menu system.

3 ***Down Cursor Button***
Moves the selection cursor Down, when using the built-in menu system.

4 ***Source Button***
Not used.

5 ***Output Button***
Pressing this button to cycle through the following Output Modes: 480i, 576i, 720p, and 1080i.

6 ***Menu Button***
Displays the built-in menu system.

7 ***Right Cursor Button***
Moves the selection cursor to the Right, when using the On-Screen Display menu system.

8 ***Enter Button***
Confirms the current action.

9 ***Activity Indicator***
This LED will be activated momentarily each time a button is pressed.

IR REMOTE INSTALLATION

Installing the IR Remote Control Battery

1. Remove the battery cover on the back of the IR Remote Control unit.

2. Insert the included battery into the open battery slot. The positive (+) side of the battery should be facing up.

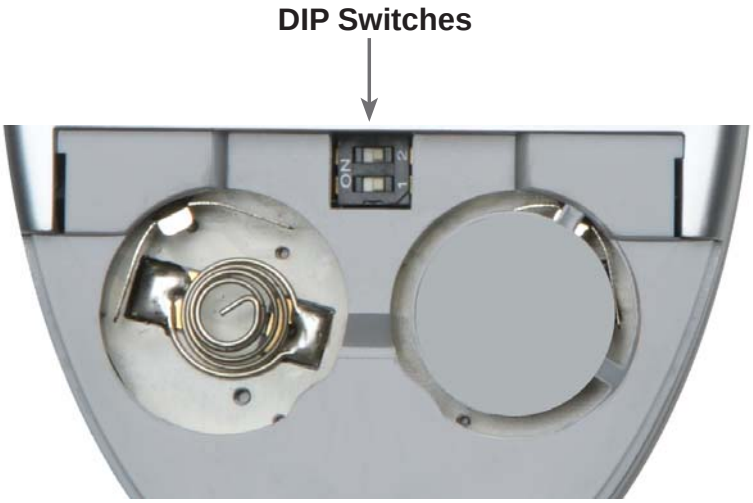
3. Replace the battery cover.

The Remote Control unit ships with two batteries. One battery is required for operation and the other battery is a spare.

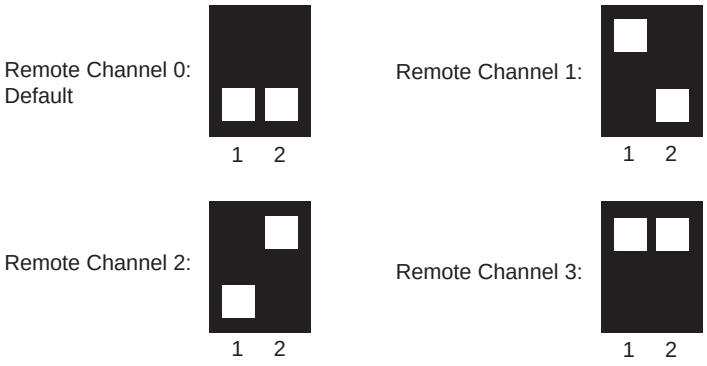
Resolving IR Code Conflicts

In the event that IR commands from other remote controls conflict with the supplied IR remote control unit, changing the remote channel will alleviate this issue. The IR remote control unit has a bank of DIP switches for setting the remote IR channel.

The DIP Switch bank on the IR remote control unit is located underneath the battery cover.



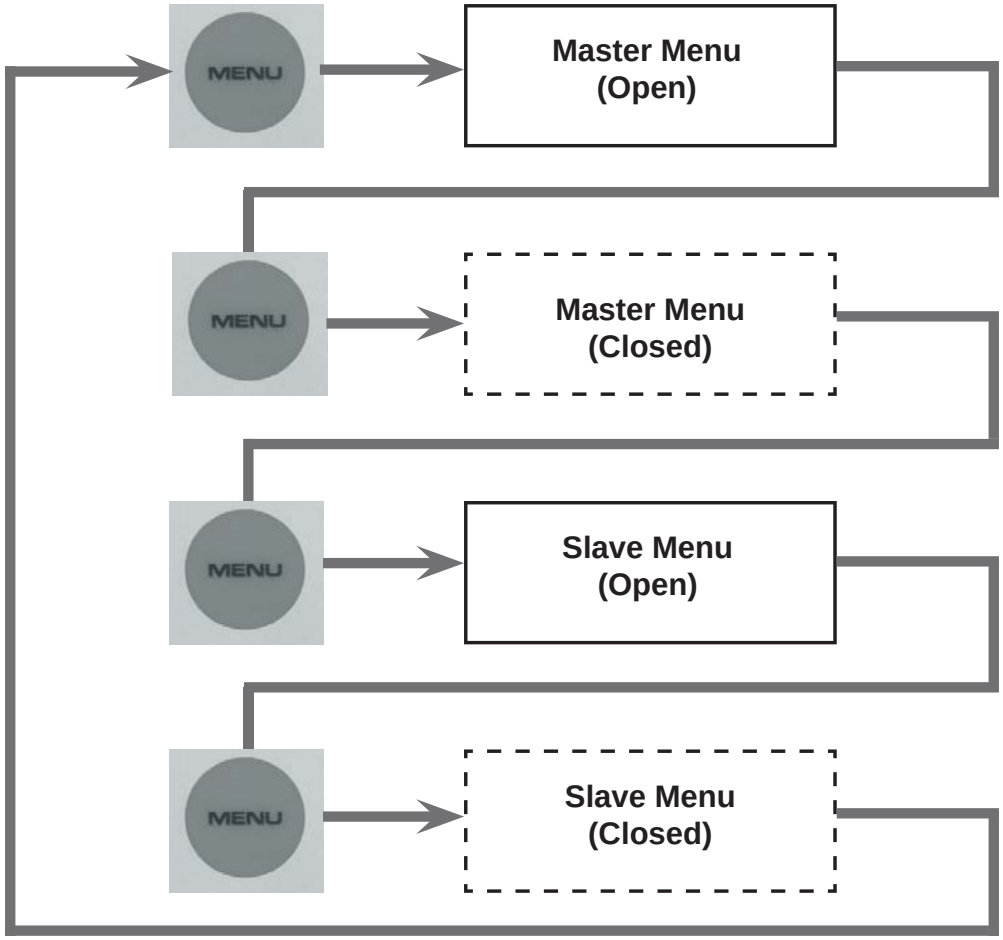
It is important that the IR channel selected on the remote, match the IR channel on the DVI to HDSDI Pro Scaler for proper operation. For example, if you set both DIP switches on the remote to the down position (toward the “1” and “2”), IR channel 0, you must set the DVI to HDSDI Pro Scaler to use IR channel 0.



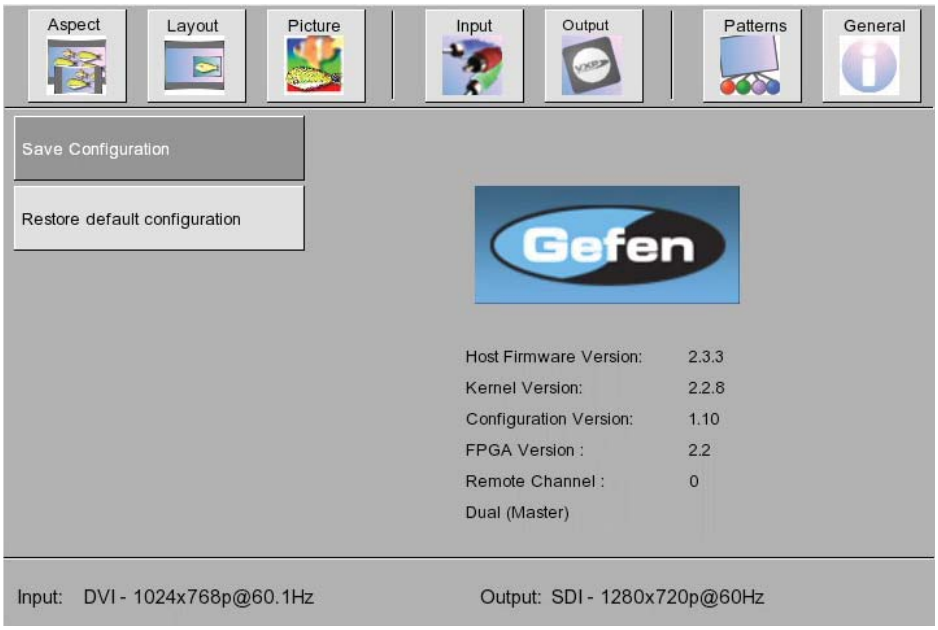
See page ## for information on how to change the IR channel on the DVI to HDSDI Pro Scaler.

Controlling Master and Slave Units

The DVI to HDSDI Pro Scaler contains a master and a slave unit. The built-in menu system is controlled using the IR Remote Control Unit. To view the built-in menu system for the *master* unit, press the Menu button once on the IR Remote Control Unit. To bring up the built-in menu system for the *slave* unit, press the Menu button twice. See the illustration below for details.

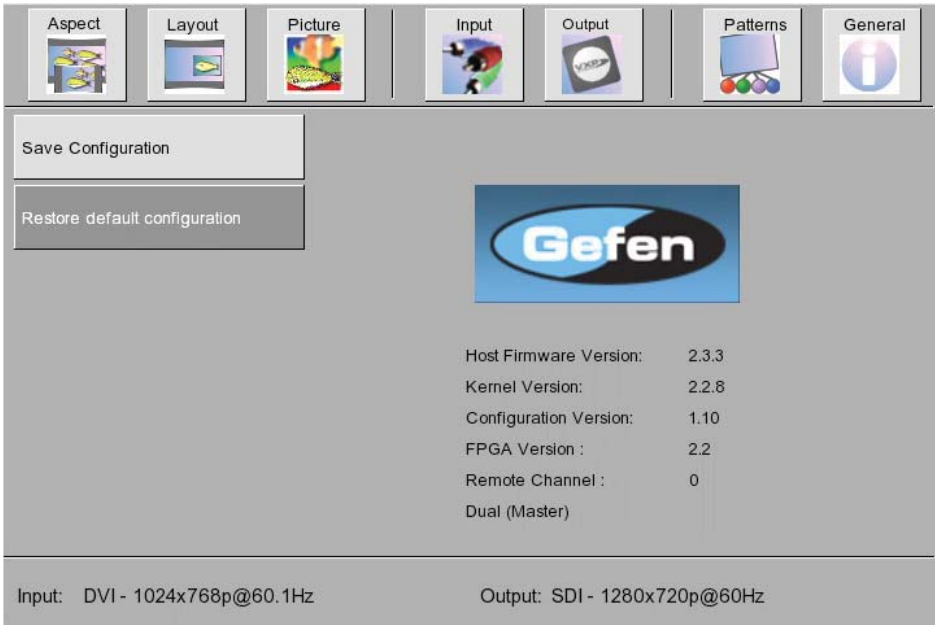


General > Save Configuration



Saves the current configuration of the Scaler (Input format, Output format, etc). These settings are restored at power-up. Changes can be made to the current settings and then saved using the *Restore Default Configurations* function (below).

General > Restore Default Configuration



Restores the Scaler to the factory default settings.

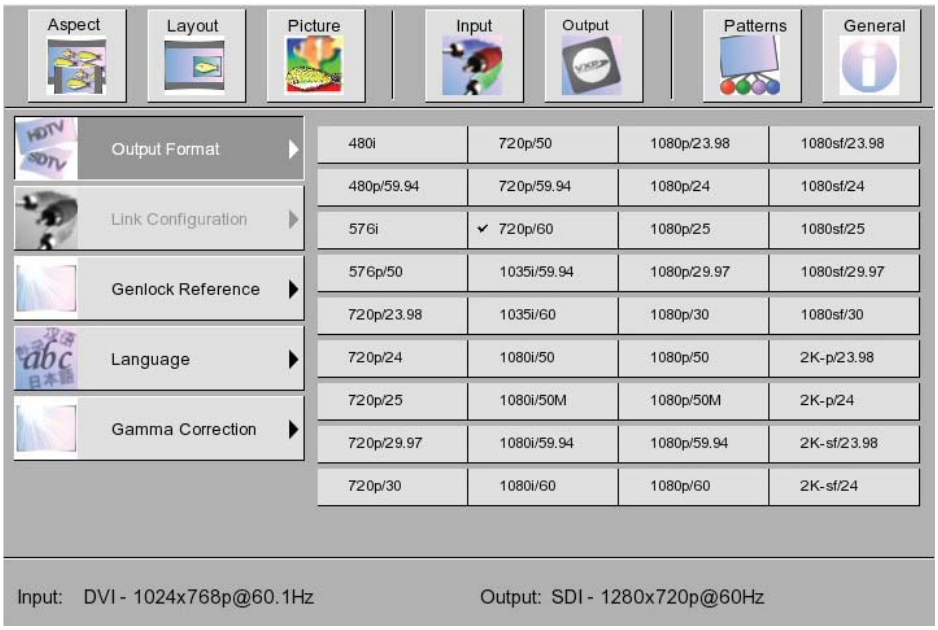
Patterns > Color Bars

Displays the Color Bar pattern using the built-in pattern generator.

Patterns > Cross Hatch

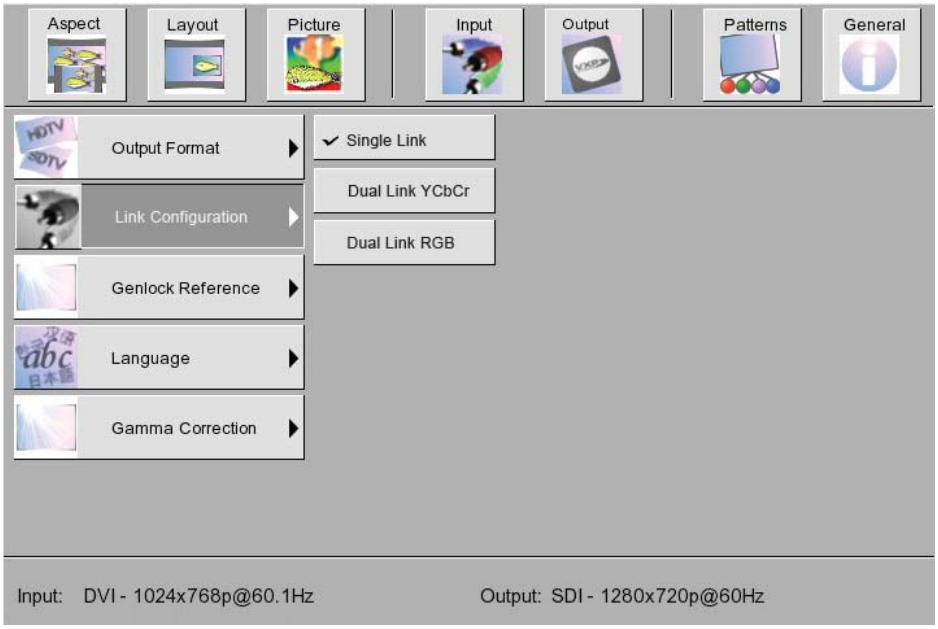
Displays the Hatch Pattern using the built-in pattern generator.

Output > Output Format



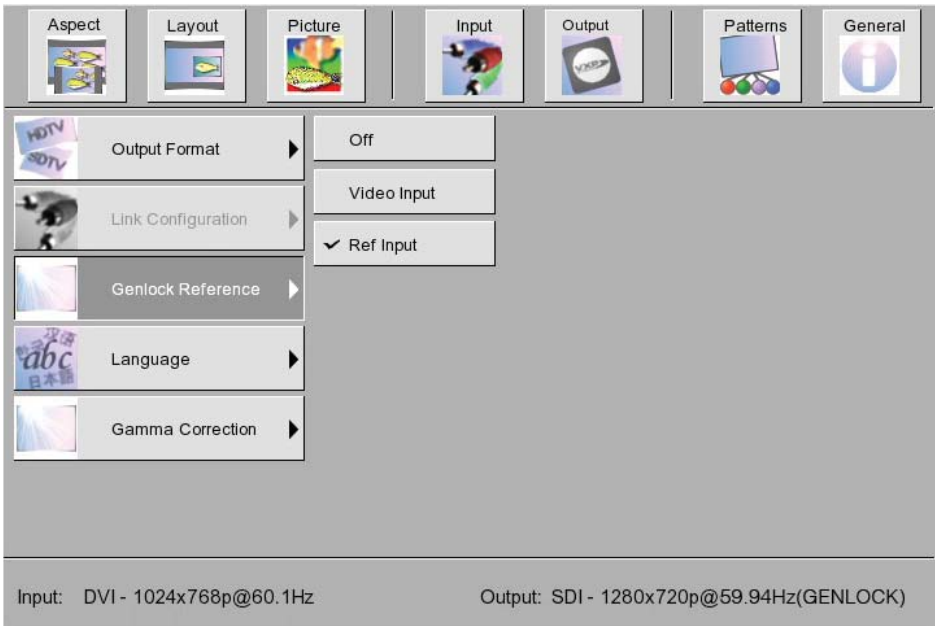
Selects the Output resolution. See page 27 for supported output timings.

Output > Link Configuration



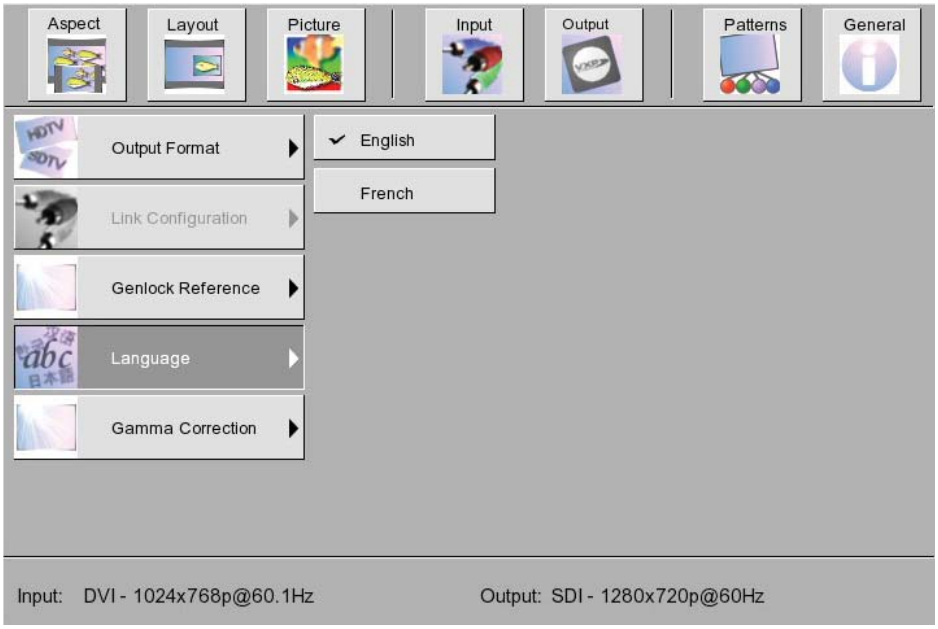
Dual Link configuration: Single Link, Dual Link YCbCr, or Dual Link RGB.

Output > Genlock Reference



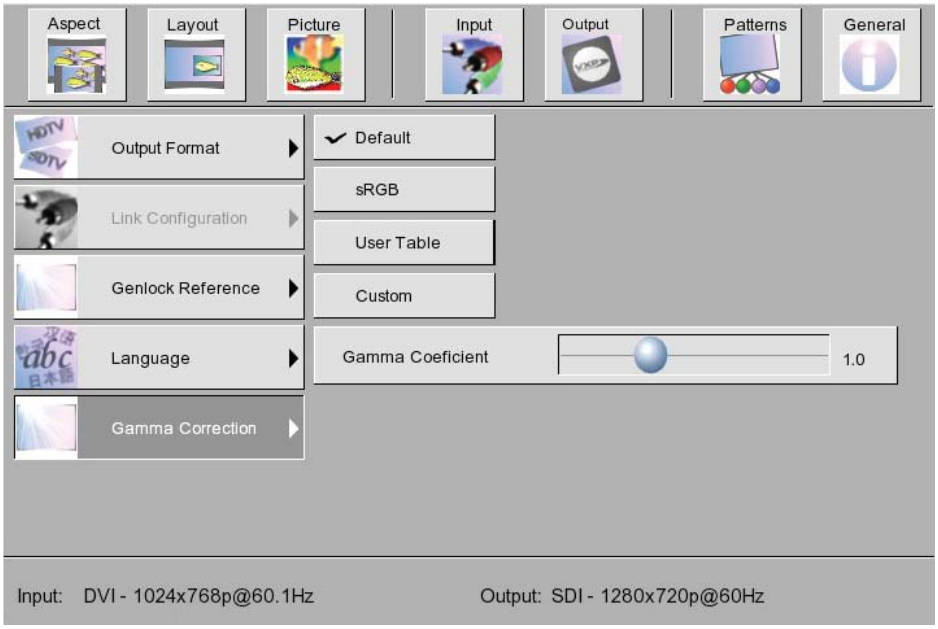
The video signal can be synced (“genlocked”) to an external clock or video input using the Reference In connector. In order to use Genlock, the external clock must be a multiple of four (4) of the source timing.

Output > Language



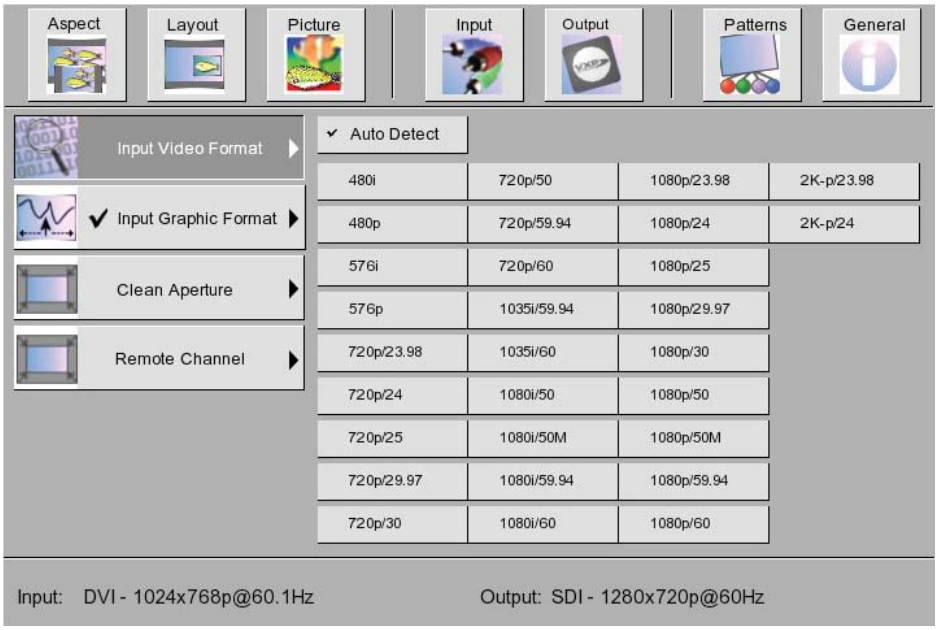
Localizes the On-Screen Menu to either English or French.

Output > Gamma Correction



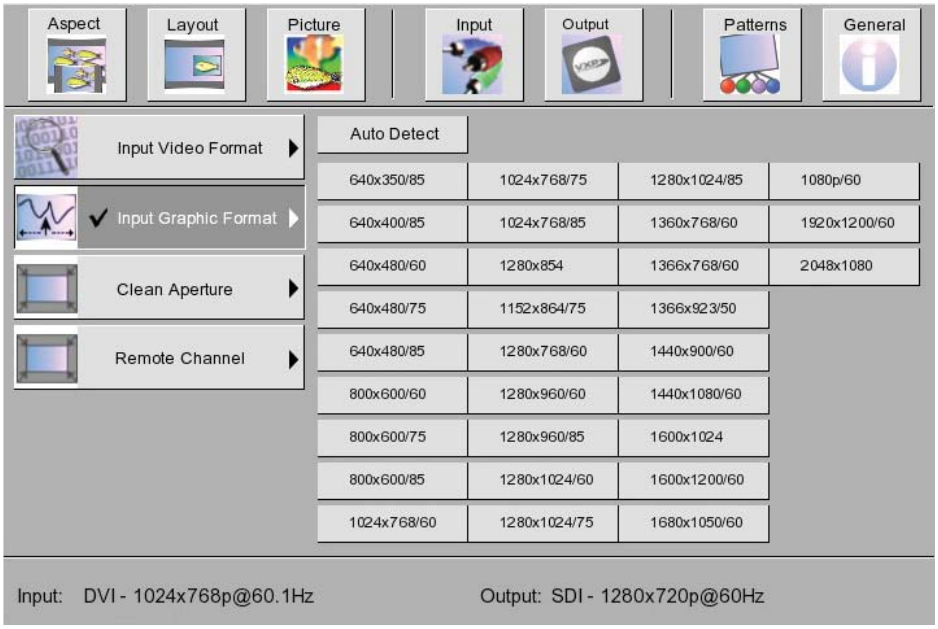
Allows adjustment of the Gamma coefficient, in addition to changing to the sRGB color space or other custom color tables.

Input > Video Format



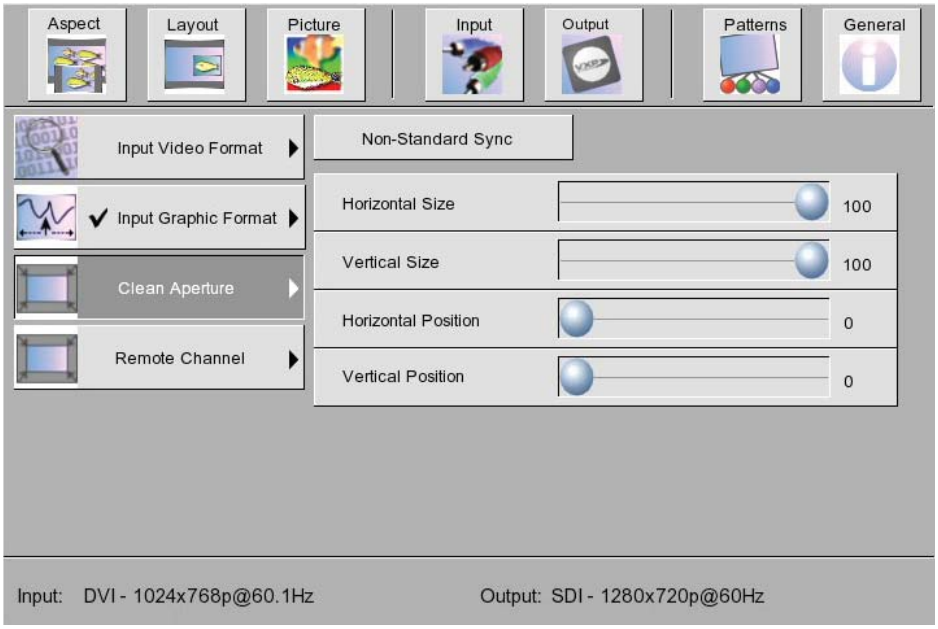
Selects the input video format. By default, this option is set to Auto-Detect.

Input > Input Graphic Format



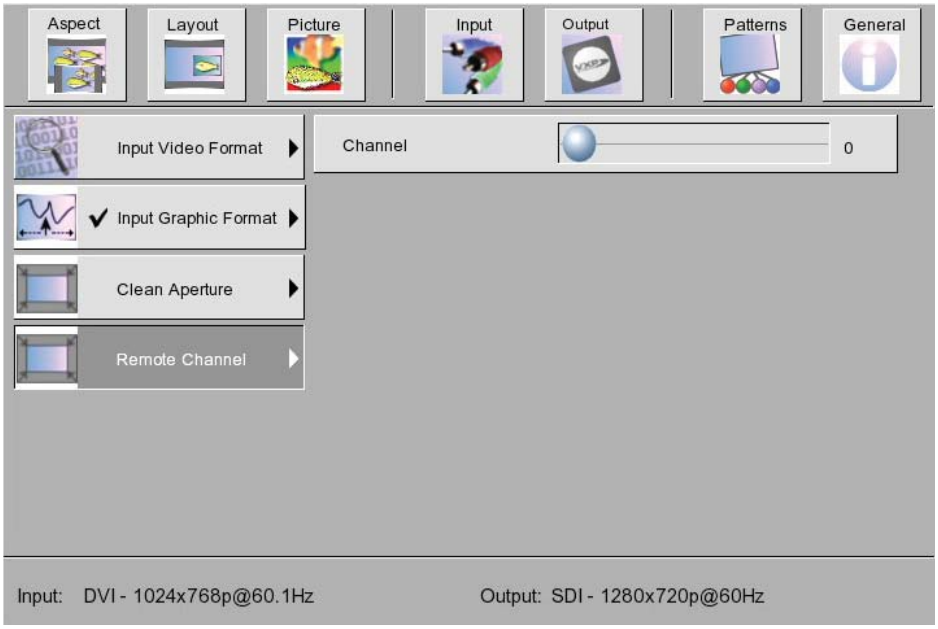
Selects the input graphic format. This should only be used if using a non-standard timing which the DVI to HDSDI Pro Scaler does not recognize.

Input > Clean Aperture



Controls the zoom on the input signal. Zooming the image can be controlled using individual axis.

Input > Remote Channel

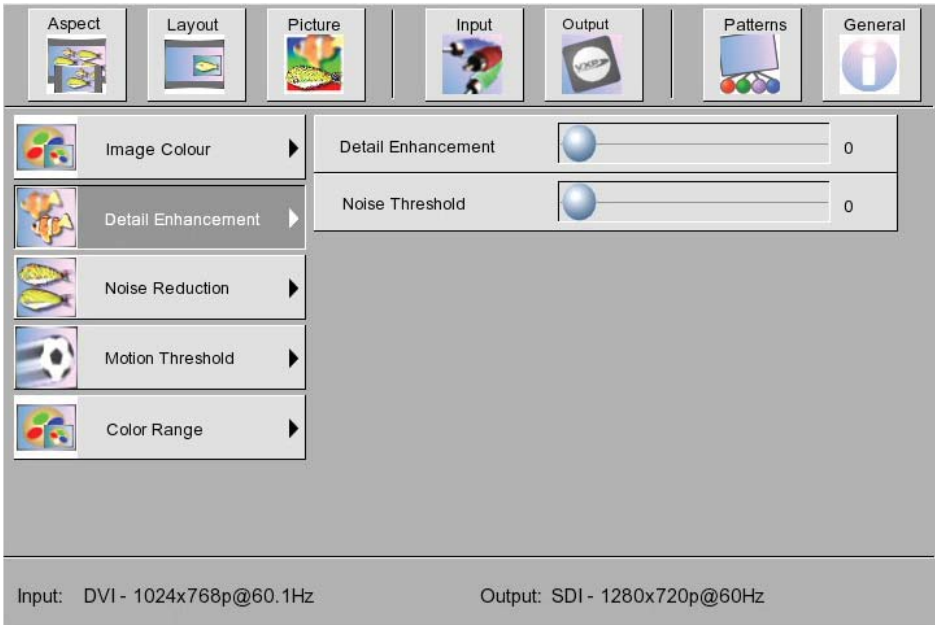


Changes the IR channel of the DVI to HDSDI Pro Scaler. The IR channel range is 0 - 3. NOTE: The IR channel can only be changed when using the Master Menu.

Picture > Image Colour

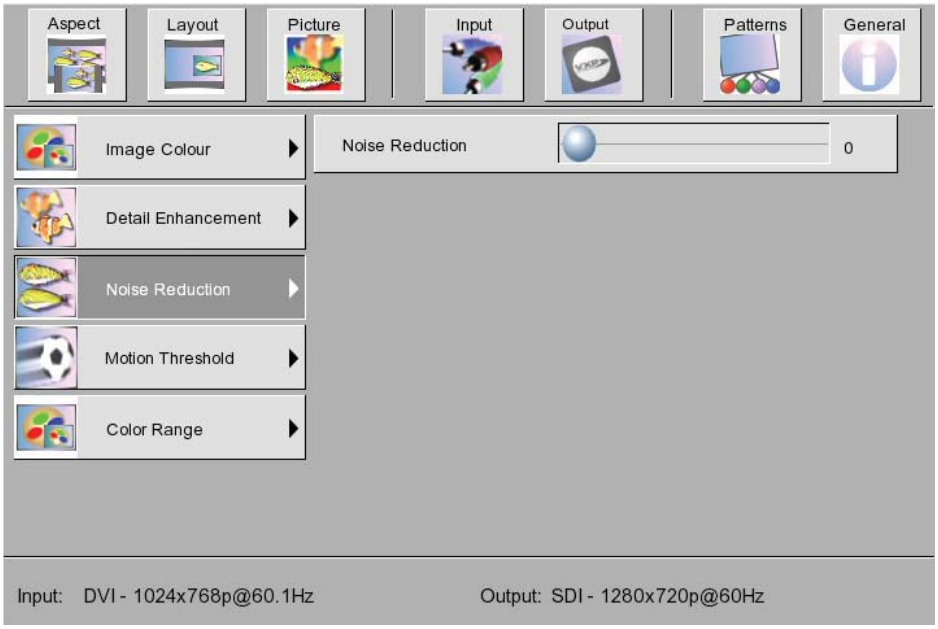
Adjusts the color levels on the output signal.

Picture > Detail Enhancement



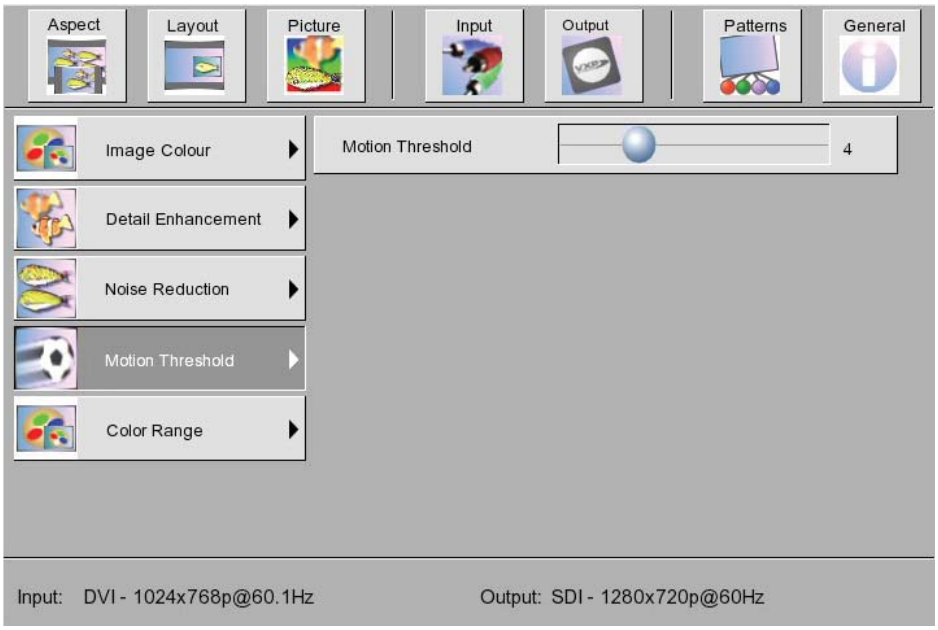
Adjusts the detail / sharpness of the image. The noise threshold can also be changed.

Picture > Noise Reduction



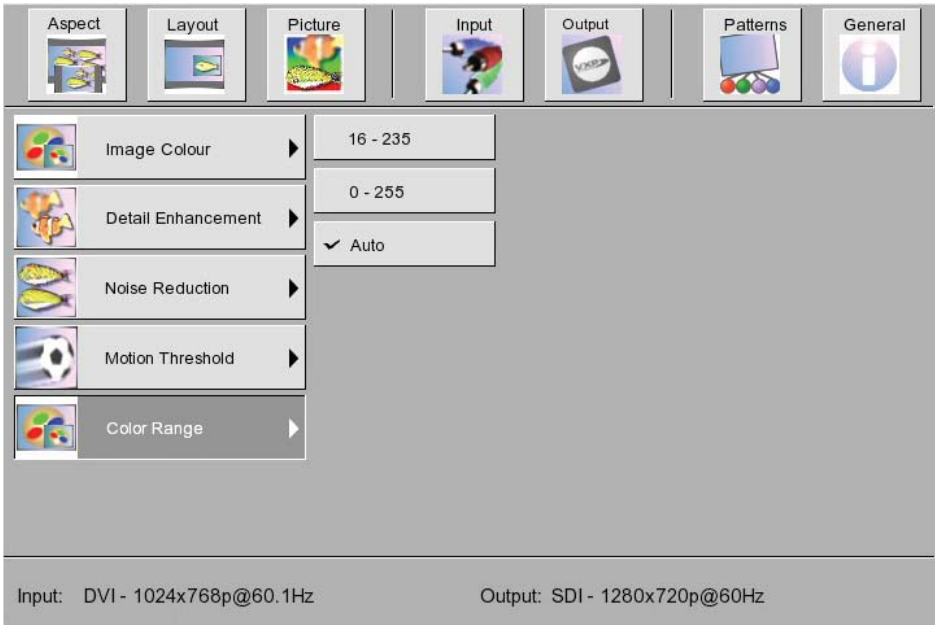
Digitally reduces noise in the image.

Picture > Motion Threshold



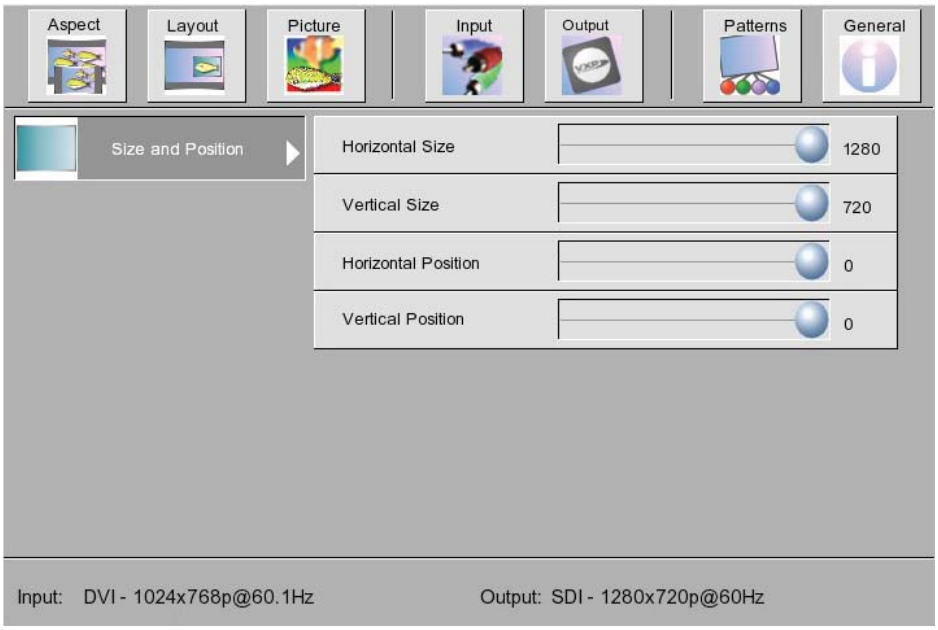
Sets the intra-frame motion detection threshold for the de-interlacer. Video artifacts are sometimes introduced when creating a progressive frame from interlaced frames. Use this function to set the motion threshold used by the motion-detection algorithm when de-interlacing.

Picture > Color Range



Adjusts between limited RGB and full-range RGB.

Layout > Size and Position



Adjusts both the vertical and horizontal size and position of the output signal.

Aspect > Full Screen

Stretches the output signal to fit the entire screen.

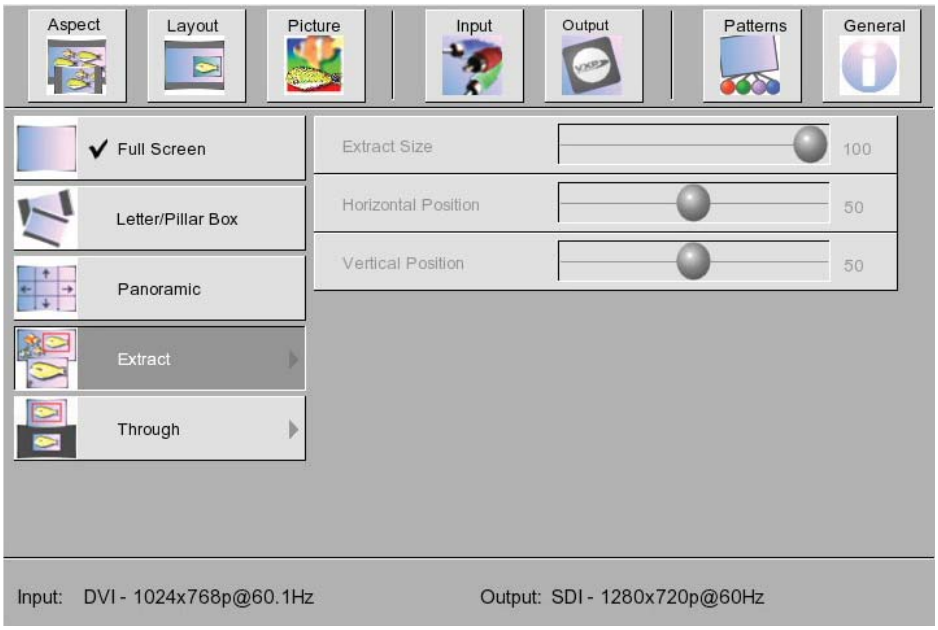
Aspect > Letter / Pillar Box

Sets the aspect ratio on the output signal to fit the letter box or pillar box format.

Aspect > Panoramic

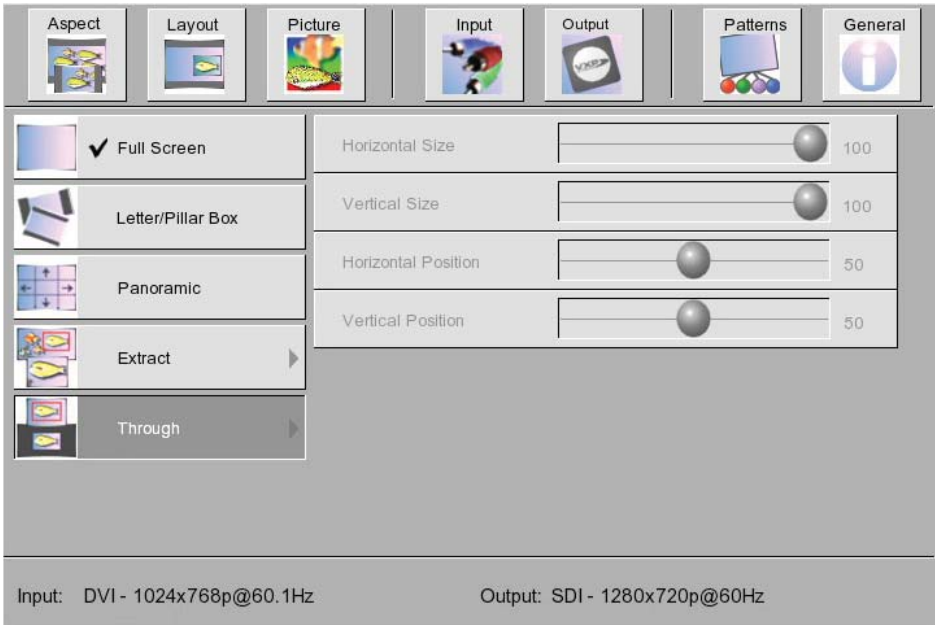
Panoramic Zoom feature.

Aspect > Extract



This function extracts a sub-window of the input signal. Use the Extract Size parameter to define the window size based on the percentage of the input. Use the Horizontal and Vertical parameters to select the area of the window to be extract.

Aspect > Through



Defines a sub-window that is always centered on the screen. The position of the sub-window is relative to the full picture. This features allows a selected area of the input signal to be displayed without modifying its size.

RS-232 CONTROL

The GefenPRO DVI to HDSDI Scaler Pro can accept commands through the RS-232 serial communications port located on the rear panel. RS-232 can be used to control many of the product's features which are also controlled using the IR Remote Control Unit. Refer to the HDSDI RS-232 Serial Communications Manual on the Gefen web site for details on using the RS-232 interface.

Only Pins 2 (RX), 3 (TX), and 5 (Ground) are used on the RS-232 serial interface

RS-232 Settings

Bits per second 115200

Data bits 8

Parity ..... None

Stop bits 1

Flow Control ..... None

SUPPORTED RESOLUTIONS

Input Video Formats Supported:

480i	720p/50	1080p/23.98	2K-p/23.98
480p	720p/59.94	1080p/24	2K-p/24
576i	720p/60	1080p/25	
576p	1035i/59.94	1080p/29.97	
720p/23.98	1035i/60	1080p/30	
720p/24	1080i/50	1080p/50	
720p/25	1080i/50M	1080p/50M	
720p/29.97	1080i/59.94	1080p/59.94	
720p/30	1080i/60	1080p/60	

Input Graphic Formats Supported:

640x350/85	1024x768/75	1280x1024/85	1080p/60
640x400/85	1024x768/85	1360x768/60	1920x1200/60
640x480/60	1280x854	1366x768/60	2048x1080
640x480/75	1152x864/75	1366x923/50	
640x480/85	1280x768/60	1440x900/60	
800x600/60	1280x960/60	1440x1080/60	
800x600/75	1280x960/85	1600x1024	
800x600/85	1280x1024/60	1600x1200/60	
1024x768/60	1280x1024/75	1680x1050/60	

Output video formats supported:

480i	720p/50	1080p/23.98	1080sf/23.98
480p/59.94	720p/59.94	1080p/24	1080sf/24
576i	720p/60	1080p/25	1080sf/25
576p/50	1035i/59.94	1080p/29.97	1080sf/29.97
720p/23.98	1035i/60	1080p/30	1080sf/30
720p/24	1080i/50	1080p/50	2K-p/23.98
720p/25	1080i/50M	1080p/50M	2K-p/24
720p/29.97	1080i/59.94	1080p/59.94	2K-sf/23.98
720p/30	1080i/60	1080p/60	2K-sf/24

SPECIFICATIONS

Input Video Bandwidth.....165 MHz

Output Video Bandwidth..... 2 x 1.485 Gbps

Maximum Input Resolution.....2048x1080

Maximum Output Resolution.....2048x1080 with Dual Link HD-SDI

DVI Input Connector..... (2) DVI-I female

SDI/HDSDI Output Connector.....(4) BNC female

Reference Connector.....(2) BNC female

RS-232.....DB-9 female

Power Supply.....5V DC

Power Supply Connector.....Locking

Power Consumption.....20 Watts (max.)

Operating Temperature.....0 - 40 °C

Dimensions.....6.5”W x 1”D x 6.75”H

Shipping Weight.....7 lbs

WARRANTY

Gefen warrants the equipment it manufactures to be free from defects in material and workmanship.

If equipment fails because of such defects and Gefen is notified within two (2) years from the date of shipment, Gefen will, at its option, repair or replace the equipment, provided that the equipment has not been subjected to mechanical, electrical, or other abuse or modifications. Equipment that fails under conditions other than those covered will be repaired at the current price of parts and labor in effect at the time of repair. Such repairs are warranted for ninety (90) days from the day of reshipment to the Buyer.

This warranty is in lieu of all other warranties expressed or implied, including without limitation, any implied warranty or merchantability or fitness for any particular purpose, all of which are expressly disclaimed.

1. Proof of sale may be required in order to claim warranty.

2. Customers outside the US are responsible for shipping charges to and from Gefen.

3. Copper cables are limited to a 30 day warranty and cables must be in their original condition.

The information in this manual has been carefully checked and is believed to be accurate. However, Gefen assumes no responsibility for any inaccuracies that may be contained in this manual. In no event will Gefen be liable for direct, indirect, special, incidental, or consequential damages resulting from any defect or omission in this manual, even if advised of the possibility of such damages. The technical information contained herein regarding the features and specifications is subject to change without notice.

For the latest warranty coverage information, please visit Gefen's Warranty web page at http://www.gefen.com/kvm/aboutus/warranty.jsp

PRODUCT REGISTRATION

Please register your product online by visiting Gefen's web site at http://www.gefen.com/kvm/Registry/Registration.jsp

Rev A1

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This product uses UL listed power supplies.